DESCRIPTION

This Third Edition helps you assess and manage uncertainty at all stages of experimentation and validation of simulations

In this greatly expanded Third Edition, the acclaimed Experimentation, Validation, and Uncertainty Analysis for Engineers guides readers through the concepts of experimental uncertainty analysis and the applications in validating models and simulations, solving problems experimentally, and characterizing the behavior of systems. This Third Edition presents the current, internationally accepted methodology from ISO, ANSI, and ASME standards to cover the planning, design, debugging, and execution phases of experiments. Cases in which the experimental result is determined only once or when the result is determined multiple times in a test are addressed and illustrated with examples from the authors' experience. The important practical cases in which multiple measured variables share correlated errors are discussed in detail, and strategies to take advantage of such effects in calibrations and comparative testing situations are presented. The methodology for determining uncertainty by Monte Carlo analysis is described in detail.

Knowledge of the material in this Third Edition is a must for those involved in executing or managing experimental programs or validating models, codes, and simulations. Professionals and students in disciplines spanning the full range of engineering and science will find this book an essential guide.
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Coleman and Steele received the prestigious AIAA Ground Testing Award for "pioneering efforts in experimental uncertainty analysis with significant methodology advances and effective dissemination of knowledge through a straightforward engineering approach in their text and short course." They have served on experimental uncertainty and validation standards committees associated with ASME, AIAA, SAE, ISO, and NATO AGARD. They are both Fellows of ASME and Associate Fellows of AIAA.

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